In The Claims:

Please cancel claims 1-6 and 10-11, and amend claims 7-9 as indicated below.

1-6. (Cancelled)

7. (Currently Amended) A~~The~~ magnetic sensor that senses an external magnetic field using a spin-filtered sensor current flowing through a non-magnetic layer; and ~~as claimed in claim 2, wherein~~

further comprising:

a pair of ferromagnetic bodies provided on the non-magnetic layer and positioned parallel to an axes of magnetization of each of the ferromagnetic bodies; and

a power source that uses the ferromagnetic bodies as electrodes to supply the sensor current;

wherein:

the non-magnetic layer is formed of a semiconductor material; and

the axis of magnetization of one of the pair of ferromagnetic bodies changes so as to detect an external magnetic field.

8. (Original) The magnetic sensor as claimed in claim 7, wherein the semiconductor material is indium aluminum arsenide.

9. (Original) The magnetic sensor as claimed in claim 7, wherein the semiconductor material is indium gallium arsenide.

10-11 (Cancelled)